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MADRA

ETIOLOGY AND PATHOLOGY OF BRONCHIECTASIS.

BY

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Since as recent a date as 1920, the incidence of bronchiectasis has been found to have increased from 1·9 per cent to probably the most frequently encountered chronic pulmonary disease, not excepting tuberculosis. This feature has not been due to the disease itself but to modern procedures in medicine and surgery which allow more ready recognition. These include advances in roentgenology and fluoroscopy, the use of stereoscopic and lateral films, the development and employment of opaque oils to delineate the outlines of the bronchial walls and improved bronchoscopic technique, which now permits that to be a common procedure in the study of bronchial conditions.

Bronchiectasis was first described by Jean-Bruno Cazol, an assistant of Laennec, in 1808. This description was rather complete and no other important phase of the disease was brought out until postural drainage was introduced by Quincke in 1898. With the introduction of lipiodol, which is successfully employed as both a diagnostic and therapeutic agent, by Picard and Forestier in 1921, renewed interest in the disease developed. This, plus the other procedures mentioned in the opening paragraph, has revealed bronchiectasis to be a very common pulmonary disease.

The term, bronchiectasis, is merely a descriptive one. Its employment signifies a dilatation of a bronchus and gives no hint as to an etiological agent. Bronchiectasis may be single or multiple, bilateral or unilateral, localized or diffuse. Most texts state that there are three types: cylindrical, fusiform and saccular. These are self-descriptive and the shape of the individual dilatation implied is obvious. At the autopsy table, the great

majority appear as a tortuous tube (cylindrical) ending in a saccular dilatation. During diagnostic work, on the x-ray film, we see horizontal half-moons; and, with the use of an opaque medium "puddling" and proximally evidence of tubular dilatation. I should like to emphasize that bronchiectasis may be found in any portion of any lobe, but the majority are found in the left lower lobe. I could find no satisfactory explanation for this.

Bronchiectasis may be congenital or acquired. Clinically, only a scant number are found to be congenital. Even then, an infection superimposed is probably necessary before the disease may manifest itself. Practically all writers on the subject emphasize the effect of infection in the pathogenesis of the condition, which may be acute or chronic. There is an infiltration of inflammatory cells into and beneath the mucosa and submucosa and on into the muscular and elastic tissue layers. This produces some sloughing of the lining epithelium, fragmentation and degeneration of the muscular and elastic tissues with subsequent thinning and dilatation of the walls. The weight of contained secretions, chiefly pus, plus, in many instances, the pull of surrounding fibrous tissue dilates further the weakened wall.

No single bacterial organism has characteristically and continually been found as the causative one. David T. Smith has experimentally produced bronchial dilatation in rabbits by the intratracheal injection of the fusospirochetal group of anaerobic organisms found in cases of nontuberculous bronchiectasis and he concluded that they were the probable cause of primary bronchiectasis. Woodward has frequently recovered staphylococci in early bronchiectasis where the sinuses were also involved. Opie, Blake, Small and Rivers have shown that infection of the respiratory tree by the influenza bacillus is a frequent cause of acute bronchial and bronchiolar dilatation. However, in the ordinary clinical case of bronchiectasis there is found a plethora of bacteria with streptococci predominating. These may not include the organism primarily responsible for the onset of the condition but may well represent the host of secondary invaders. Probably no specific type plays an etiologic role. But many bacteria are capable of producing damage to the bronchial wall to allow dilatation. This infection with the accumulating exudate is the thing giving a patient his symptoms, as a dry bronchiectasis may be present many years without having attention called to it.

For purposes of simplification the etiological factors may be divided into intrinsic and extrinsic. Under the intrinsic are those which affect primarily the bronchial tubes; under the extrinsic, those in which the bronchi are secondarily involved.

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MADRAS

A. The Intrinsic Factors.

1. Respiratory infections.
   a. Pulmonary tuberculosis.
   b. Chronic bronchitis.
   c. Bronchopneumonia.
   d. Influenza.
   e. Fusospirochetal disease.
   f. Whooping cough.
2. Chronic bronchial asthma
3. Foreign bodies.
4. Stagnating secretions.
5. Bronchial tumors.
6. Poison gases.
7. Congenital defects.

B. Extrinsic Factors.

1. Chronic sinusitis.
2. Chronic interstitial pneumonia.
3. Tumors.
4. Aneurysm.
5. Atelectasis.
6. Chronic adhesive pleurisy.

A. INTRINSIC FACTORS.

1. *Respiratory Infection.* (*a*) Pulmonary tuberculosis is perhaps the most common factor in the production of bronchiectasis. The pathologic changes of this disease provide all the requirements for bronchial dilatation: ulceration and necrosis of the bronchial wall, free purulent exudate, more or less massive, with its weight, and pulmonary fibrosis. Many adult types of tuberculosis are the results of bronchial spreads. This is characterized by invasion of the bronchial wall by the tubercle bacilli with a subsequent typical tuberculous inflammatory reaction and later necrosis and ulceration. An exudate of necrotic material from the mucosa, submucosa, muscularis and and elastica, inflammatory cells, and so forth, is free in most cases in the bronchial lumen. The weight of this furthers the dilatation of a weakened wall. Very soon fibrous tissue formation begins. This may extend into the surrounding structures and subsequently pull on bronchial walls to further their dilatation. Bronchi outside and away from the involved area may be dilated by this form of interstitial pneumonia.

(*b*) In every case of clinical bronchiectasis we have some degree of chronic bronchitis and to a certain degree in every case of chronic bronchitis there is, sooner or later, bronchiectasis. Regardless of the etiology of chronic bronchitis we have in its pathologic lesions the proper setting for bronchiectasis. There are inflammatory cells, especially in the deeper layers of the wall, with fibrosis and edema and degenerations with fragmentations of the muscle and elastic tissue fibers. Frequently the normal columnar epithelium has been sloughed away and replaced by regenerative stratified squamous epithe-

lium. The weight of the retained secretions also add to the furtherance of the dilatation.

(c) In bronchopneumonia, from any cause, we find a more acute type of inflammation, with the bronchial lumen filled with an exudate of leukocytes, erythrocytes, fibrin and edema, bacteria, discarded mucosal cells, as well as an inflammatory exudate extending through all the layers of the bronchial wall, thereby weakening it, into the nearby alveoli.

(d) Influenza has been shown conclusively to be the cause of acute bronchiectasis, the bronchial dilatation appearing as soon as the eighth day after the onset of the illness. This is at first an acute bronchopneumonic infection, but may extend to a lobar type of pneumonia. The microscopic picture is very similar to that just described for bronchopneumonia, but the bronchioli and smaller bronchi are involved.

(e) The organisms of fusospirochetal disease have been recovered from bronchiectatic conditions and have, therefore, been ascribed as a cause of bronchiectasis. These organisms, being anaerobic, spread quickly to the supportive portions, submucosa and muscularis, of the bronchial walls and thereby weaken the structure. Fusospirochetal disease of the lungs, including bronchitis, should especially be suspected in pulmonary infections where there is dental sepsis, Vincent's infections of the gums or throat and when there is a foul odor to expectorated material.

(f) Whooping cough produces a catarrhal condition of the bronchi, plus, as shown by Mallory and his co-workers, a mechanical damage to the mucosa by the enormous numbers of bacilli present, all of which may cause bronchial dilatation. .

2. Chronic bronchial asthma sooner or later, because of a superimposed infection or retained secretions of mucus and pus, will produce a saccular dilatation of the terminal bronchi and bronchioles.

We might expect that in all the factors mentioned above, the symptom, cough, would play a major mechanism in the production of bronchiectasis. However, Hedblom has demonstrated that during cough the pressures within the bronchi and surrounding structures are equal.

3. Foreign bodies in the bronchi, by causing a localized area of ulceration, an uneven distribution of air, a stagnation of secretions and atelectasis, can give rise to bronchiectasis.

4. Stagnating secretions, which are more likely than not to be purulent, and if not, to become purulent, will produce infection of the bronchial wall; this, together with their weight, produces bronchial dilatation.

5. Bronchial tumors, which usually have origin from the lining epithelium or the epithelium of the mucosal glands, may result in bronchiectasis by producing ulceration and infection, an uneven distribution of air, a stagnation of secretions, and atelectasis as in the case of a foreign body.

6. Poison gases, by their direct irritating effects with subsequent inflammation and ulceration, in addition to an enormous amount of secretions, left many gassed soldiers of the world war with bronchiectasis.

7. Congenital defects, where there may be a congenitally weak or thin bronchial wall, or where there is atelectasis, may give rise to bronchiectasis.

B. Extrinsic Factors

1. Chronic sinusitis is frequently associated with bronchiectasis. This is due to the infection along the bronchi, secondary to the sinusitis. This infection may get to the bronchi by way of direct extension down the respiratory tract or by way of lymphatic drainage from the sinuses to the pulmonary structures. The weakening bronchial infection and weighty secretions follow.

2. Chronic interstitial pneumonia or pulmonary fibrosis from any cause quite readily gives rise to bronchial dilatation by the fibrous tissue pulling on the bronchial wall. The conditions giving rise to chronic interstitial pueumonia are tuberculosis, inhalation of dust (pneumonokoniosis), pneumonia, atelectasis of the lungs, pleurisy, chronic congestion of the lungs and pulmonary syphilis, a rare condition.

3. Tumors, whether metastatic in type to the lung parenchyma or pleural endothelioma with pressure on the bronchi, may eventually act similarly to foreign bodies in the production of bronchiectasis.

4. Aneurysm, by pressure, or, more often, by encroachment of the advancing syphilitic inflammatory process on the bronchial wall can produce dilatation.

5. Atelectasis, with its unaerated state and a superimposed bronchial infection, a common sequence, produces bronchial dilatation. Singer and

Graham and Anspach have shown that in children where there is a triangular shadow at the base of the lung, it is atelectatic and that bronchiectasis may follow.

6. Chronic fibrous pleurisy with adhesions between the parietal and visceral pleurae tugging on the lung parenchyma and bronchial walls, can produce bronchiectasis.

In considering the pathologic changes of bronchiectasis we could scarcely overlook the complications and sequelae. They may be listed as follows: bronchopneumonia from direct extension of the infection, hemoptysis from ulceration of blood vessel wall, fibrosis from healing and spreading of infection, emphysema from weakening of the alveolar wall and dyspnea, pulmonary abscess from massive infection, brain abscess from metastasis of infected emboli, general septicemia from similar cause, amyloid disease due to long continued toxic absorption, empyema from massive infection to the pleura, cardiac insufficiency from toxicity and lessened pulmonary circulatory bed, and clubbed fingers and toes which usually follow any severe chronic pulmonary condition.

In summarizing, the causes, character and sequelae of bronchiectatic lesions have been discussed.

(Texas' State Journal of Medicine.)

NOTES ON PUBLIC HEALTH.

(Issued by the Principal Information Officer, Government of India)

Press Note.

"IRON LUNGS" FOR INDIAN HOSPITALS

SIX IN CENTRALLY ADMINISTERED AREAS

LORD NUFFIELD'S GIFT

Six hospitals in centrally administered areas which are considered suitable for the supply will benefit from Lord Nuffield's offer of "Iron Lungs" or respirators to hospitals in the British Empire about which an announcement was made some time ago. These hospitals are the following :

1. Ross General Hospital, Port Blair.
2. New Victoria Hospital, Ajmer.
3. Civil Hospital, Mercara.
4. Irwin Hospital, New Delhi.
5. Lady Hardinge Medical College and Hospital New Delhi.
6. Civil Hospital, Quetta.

Provincial Governments have been asked to communicate their requirements direct to the High Commissioner for India for transmission to the appropriate authorities.

Only those hospitals have been selected for receipt of the "Iron Lungs", which can provide for skilful handling and maintenance of the apparatus in perfect working condition. The apparatus is worked by electricity, but in an emergency can also be operated by hand. Hand operation is, however, laborious and the machine is not recommended for use where electric supply is not available.

USE IN RESPIRATORY DISORDER

Though associated in the popular mind almost exclusively with the treatment of respiratory paralysis following upon infantile paralysis, the machine is of value in many other conditions of respiratory disorder as well. For example, it is used extensively in the United States of America for the treatment of loss of consciousness following gas poisoning and poisoning from other drugs.

A film has been made demonstrating both how the machine can be kept in order and how nurses have to deal with patients in the machine.

The film is 16 mm. in size and can be had at a cost of approximately £3 from School Films Ltd., 498a, Oxford Street, London, W. 1.

The respirator is delivered free at Cowley, Oxford, and transport and other charges have to be borne by the recipient. The total weight of the apparatus is just under 4 cwt. and it takes up slightly more room than a single bed. It is anticipated that deliveries will begin shortly.

It is Lord Nuffield's intention to manufacture the necessary number of "Iron Lungs" and then to close down this part of his work,

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MEDICAL RESEARCH IN INDIA.

EPIDEMIC DROPSY THEORY.

New light has been thrown on the etiology of epidemic dropsy, widely prevalent in Bengal and parts of Assam, Bihar and Orissa—in north-eastern India generally—while recent outbreaks have also occurred in places as far west as Benares and Cawnpore, according to the latest Annual Report of the Indian Research Fund Association just published. Details are given in the Report of numerous researches carried out under the auspices of the Association.

The cause of epidemic dropsy has for long been the subject of intensive research in the School of Tropical Medicine, Calcutta, and the All-India Institute of Hygiene and Public Health, Calcutta. Recent work at both the institutions has tended to emphasise the association of mustard oil with the propagation of the disease, a theory which is not new but which had been replaced for a time by two others, namely, those of contact infection from patient to patient and of infection carried through rice damaged by unfavourable conditions of storage.

ARGEMONE—THE OFFENDING FACTOR?

The studies suggest that the offending factor is the seed of a plant, Argemone mexicana, which appears to be widely distributed and to be often present as a wild growth in mustard plant fields. Its seeds are harvested along with mustard and argemone oil is also expressed along with mustard oil without the manufacturers being aware of such adulteration.

Human experiments have indicated that mustard oil adulterated with argemone oil to the extent of five to ten per cent produces a condition closely resembling that of epidemic dropsy, while laboratory work has shown that

samples of injurious mustard oil associated with outbreaks of the disease give the same chemical reactions as a mixture of mustard and argemone oils.

Evidence has thus been obtained for the hypothesis that the causative factor of epidemic dropsy is the presence of argemone oil in the mustard oil used in the affected areas for cooking. In all probability, there is no intentional mixing of the two oils by the manufacturers or vendors of mustard oil. Research on the various problems raised by this discovery is being actively pursued, and it is hoped that in the near future prompt and effective action will be possible for the prevention of the disease.

Studies in Cholera

Though the cholera organism was discovered as far back as 1884, many points still remain obscure in regard to its actual manifestations in different places, and at different times. While in some areas, such as the Punjab and the North West Province, cholera appears only at intervals of a few years, in certain parts of Bengal it starts almost regularly at specific seasons every year. An investigation into the causes is complicated by the fact that, apart from the true organism responsible for the disease, numerous other allied organisms exist in water supplies. A differentiation of the characteristics of the true cholera germs from its allied organisms and the formulation of a method of separating out the former when present along with large numbers of the latter are, therefore, essential.

Considerable success has of late been achieved in these two directions in India, and the researches carried out have received warm appreciation from the International Public Health Office at Paris. In the light of the new knowledge, a field investigation is now being undertaken in Bengal, and it is hoped that the results of this enquiry will enable preventive measures to be taken with greater success.

Studies in Malaria

Malaria investigations, both in the laboratory and the field, have proceeded apace under the auspices of the Malaria Institute of India, which is financed by the Indian Research Fund Association. In the Wynaad, Madras, and in the Terai in the United Provinces, research units have been making field studies and similar investigations are proposed for Orissa along the margin of the Chilka Lake. In Delhi, also, anti-malarial operations were supervised by the Malaria Institute. In addition, expert advice is given to the Provincial Public Health Department in respect of antimalarial schemes.

Studies have been made on the problem of rural malaria, which is of great importance, as nearly 90 per cent of the total population in India live in villages and costly methods of malaria control are difficult of application. In Delhi province the usefulness of spraying dwellings with insecticides has been tried and this method appears to provide a hopeful line of advance for dealing with rural malaria.

Researches have also been carried out on synthetic drugs like atebrin and plasmoquine, the use of which in malaria is becoming common, and as far as has been ascertained by experimental work on animals, these drugs have not been found to have any adverse effect on the course of pregnancy.

ANTI-PLAGUE SERUM

In the Haffkine Institute, Bombay, investigations were continued as to the best conditions under which antiplague vaccine of high protective value could be manufactured. An anti-plague serum has also been produced for the treatment of patients. The serum has had a limited trial during an outbreak of plague in Bihar, and the results so far recorded suggest that its use reduces mortality.

Cyanogas fumigation for keeping down the rat population has been tried as an anti-plague measure in the Cumbum Valley, Madras, and the conclusion reached that fumigation of every quarter consistently for a few years may reasonably be expected to eradicate the disease. Experiments are also being continued to determine the concentrations and periods of exposure which give the most satisfactory results in the disinfection of grain bags arriving from plague infected areas.

LEPROSY SURVEY

A statistical survey of leprosy has been carried out in a group of 42 villages. While the gross incidence of the disease was found to be 4·4 per cent in the total population, only 18 per cent among the patients were of the severe lepromatous type. The majority of the infections appear to have been contracted early in life. Males showed a higher incidence than females and the disease manifested itself in a severer form among the former. Nearly 80 per cent of the cases gave a history of contact with leprosy patients, the infection being communicated in a third of the cases by near relatives, in another third by distant relations, and in the remaining third either by unrelated or by unknown persons. The severe lepromatous form of the disease transmitted infection more quickly than the relatively milder nerve type.

A study of nearly 3,000 patients in Calcutta showed that during the months, February to September, the disease became aggravated by active inflammation setting in. The cause for this change is not clearly understood yet, but, if it can be prevented, the prospect of cure will be improved.

A study has also been made of the influence of skimmed milk as a supplement to the diet of leprosy patients, and it has been found that its administration seems to hasten the recovery of the lepromatous type.

Tuberculosis Investigations

Tuberculosis investigations covered a wide range and included a detailed survey in a jute mill, 23 miles from Calcutta, employing 5,000 labourers, a study of children in tuberculous homes and an enquiry into the incidence of the infection among medical students and nurses in Lahore. There is a general recognition that the disease is spreading among urban and rural populations owing to industrialisation and rapidly increasing transport facilities and the need is being felt of defining the extent of infection in different areas and for determining the social, economic, industrial and other factors responsible for its incidence.

The survey of tuberculous homes revealed that tuberculosis was an important cause of morbidity and mortality among infants and children, a fact not noticeable from public health returns

The enquiry at Lahore showed that of 434 medical students examined 53 per cent had tuberculosis infection at some time or other and that amongst fourth and fifth year students, the percentages were as high as 70 per cent and 80 per cent respectively. This does not of course mean that they were active cases of tuberculosis. In the large majority the infection had been overcome by the natural resistance of the body. In fact, only 4·5 per cent showed physical signs of having suffered from active tuberculosis.

Improving Nutritional Standard

In the field of nutrition, simultaneously with basic research, the programme of study has been made more practical by relating laboratory investigations to the immediate necessity for improving the nutritional standard of the people under present economic conditions. As instances may be mentioned the discovery of a cheap substitute in red palm oil for cod-liver oil to make up the deficiency of vitamin A in the diet so widely prevalent in India and the demonstration that the use of calcium lactate, at a cost of half to one anna per month per child, improves his health and sense of

well-being. Special attention has been paid to diets largely composed of tapioca, such as are extensively consumed in certain parts of South India, and it has been shown that the most important defect in such diets is the deficiency of protein.

A study is being made of the effect of the use of highly milled rice on nutrition. It is recognized that as the use of home-pounded rice is rapidly disappearing, a solution of the problem of ensuring consumption of rice in its most nutritive form must be sought along other lines.

STUDIES ON RICE

Comparative studies on rice and maize have shown that rice is richer than maize in nicotinic acid, which prevents the disease called pellagra. This may explain why rice eaters rarely develop the disease.

Simultaneously with surveys of the diet and state of nutrition in different parts of India, feeding experiments in schools, boarding houses and other institutions, study of the methods of detecting malnutrition and collaboration with agricultural authorities, medical men from the Provinces and States have been trained to carry the campaign for better nutrition into different parts of India and systematic education of the people in matters of nutrition.

Knowledge of the elementary principles of nutrition is rapidly spreading and the nutrition research laboratories themselves have not been sparing in their efforts to disseminate amongst the lay public what research has yielded to the scientist.

BIOLOGICAL PRODUCTS STANDARDS

NATIONAL CENTRE FOR DISTRIBUTION

NEW ARRANGEMENTS

AT

BIOCHEMICAL STANDARDIZATION LABORATORY.

The Biochemical Standardization Laboratory, All-India Institute of Hygiene and Public Health, Calcutta, has been constituted a "National Centre" for the distribution of Standard preparations of biological products to those that ask for them. If laboratories intimate their requirements, the Centre will import and supply the appropriate standards.

Standards have been established for many products by the Biological Standardization Committee of the League of Nations, and the actual "standard preparation" of each kind is maintained and issued to research and manufacturing laboratories by specified Institutes, such as the National Institute for Medical Research, Hampsted (under the Medical Research Council) and the State Serum Institute, Copenhagen. For convenience of distribution of the "standards" to those that require them, it has been found advisable to form "National Centres" in countries where biological products are manufactured. These centres receive duplicates of each standard at intervals and issue them to working laboratories for the control of their preparations.

Formerly, laboratories in India had to obtain their "standards" from the Institutes in Europe possessing each individual type, but, with the new arrangements now brought into force, it will be possible for them to get their requirements from the Biochemical Standardization Laboratory, Calcutta.

The following are the standards which will be available at the Laboratory:—

Insulin;
Pituitary (Posterior lobe) Standard Powder;
Oestrus—producing Hormones
(i) Hydroxy-Ketonic form
(ii) Mono-benzoate of Di-hydroxy form;
Male Hormone (Androsterone);
Corpus Luteum Hormone (Progesterone);
Neoarsphenamine;
Sulphursphenamine;
Quabain or Strophanthin;
British Standard Tinct. Strophanthus;
Standard Digitalis Powder; and also
Adrenaline and Scillaren Standards.

In the manufacture of biochemical and pharmaceutical products, many of the finer qualities of which are produced in the country, India possesses a growing industry of great value. But the quality of the products has to be assessed by biological tests in relation to exact standards. The new arrangements now made at the Biochemical Standardization Laboratory are, therefore, likely to be of great assistance to this industry.

A SCHEME OF HEALTH INSURANCE

to be adopted in Municipalities.

In spite of the state hospitals, municipal dispensaries and a number of 'private' practitioners a large number of the population of a city are not receiving the medical relief and attention which they ought to. Analysing the causes, one cannot but admit that this state of affairs is due entirely to the poverty of the majority of the population. A state hospital however big and well equipped cannot give relief to all the suffering. It is not possible to accommodate all of them in the hospital. The municipal dispensaries, no doubt, give relief in the way of dispensing medicines but cannot provide for attention and attendance at home for all such cases as require such attendance. The 'private' medical practitioners, though they attend and treat a small number of poor patients free, cannot afford to deal with the large number of poor patients. In the result a large number of the suffering poor are not receiving proper medical attendance and are forced to resort to quacks even in these days of civilisation and popular Government, with the results every one is aware of. Taking into consideration the death rate and the rate of incidence of disease it is urgently necessary that a scheme of proper medical relief to the poor is adopted. It can only be done by a municipality—the best co-operative society—whose prime duty is to see to the good health of not only the rate-payer but all the people living in the municipality. Such a scheme cannot be solely and wholly undertaken by a municipality without the co-operation of the local practitioner, the government and the public. The local practitioners though willing to serve the poor cannot be expected to give their service free to all unless they are ensured atleast a fixed minimum income. No profession does give free service to the poor. The lawyer, the teacher, the merchant, even a public utility concern, or any one, does not serve the poor free. Then why should a doctor alone serve the poor free. Yet he is doing it for humanity's. There must be a limit to such exploitation of the medical profession in the name of humanity, and service to the poor. So the municipalities who are entirely responsible for the health of its population should devise a scheme of giving proper medical attendance and relief to the poor and discharge their responsibility by improving the national health. With this idea the following scheme is drafted to be adopted by the municipalities.

One word about the fees to be collected. It is a very small amount, 2 annas a month for a family with an income of Rs. 25/- or less per month, part of which is to be collected from the employer wherever there is one, which works out to be actually less than 3 pies per head per month, and it has to be collected compulsorily as a tax, by the municipality. You may ask

why this compulsion? The reason is obvious. Every one is aware how voluntary efforts are failures in the co-operative lines. It can well be imagined how a municipality which is a co-operative society working at best because of its power to collect taxes compulsorily will work if it were left to voluntary payment of taxes. One really wonders how many would pay voluntarily even though they fully well know that the money they pay goes to providing amenities for themselves. Moreover people in general, *especially those with* lower incomes, are usually very reluctant to pay anything in advance voluntarily to ensure a future medical attendance and treatment and always think *they do not need it.*

So it is very essential if a scheme of Health Insurance were to be taken up and successfully worked there should be some machinery to collect the fees compulsorily as taxes. If not, there is no use of trying any such scheme as it is sure to be a failure.

If one analyses the scheme one will see that medical relief can be obtained very cheaply by every class of people without any hardship on anybody, *either the doctor or the patient.*

THE ADVANTAGES are

1. All the people living in a municipality can be given medical attendance and relief, at a very insignificant cost.

2. Incidentally more employment in the way of clerks, peons, compounders etc. can be created in the *municipality relieving* to some extent the unemployment now prevalent.

3. The medical practitioner—though he does not get fully paid for his services can devote himself to the profession and relieve suffering as he is assured of a minimum fixed income.

4. Ultimately the better health of the populace results in better economic well-being of the country proving that **Health is Wealth.**

5. The municipality saves the expenditure it is at *present incurring* on medical relief.

In view of the above, it is earnestly hoped that all the authorities concerned will give the scheme their sympathetic consideration and wholehearted support, about it and introduce it in municipalities.

THE V. I. M. P. GUILD,
Vizagapatam,
9-7-'39.

K. VISWANATHA RAO,
Hon. Secretary.

THE SCHEME.

1. All people with an income of Rs. 100 and less a month are to compulsorily join the scheme.

All those with an income of Rs. 101 to 200 can join the scheme at their option.

All those with an income above Rs. 200 are debarred from joining the scheme.

Compulsion is necessary as people do not understand the advantages of the scheme in the beginning and do not join it voluntarily if left to themselves.

2. The following membership fee shall be collected as a tax by the municipality, from all those with an income of

Rs. 25 or less per month

Rs. 1 8 0 per year per family.

Half of this is to be collected from the head of the family and the other half from the employer in all cases of employment of a month and over.

This works out to be less than 5 pies per head per month. Actually it is less than 3 pies in all cases of employment.

Rs. 26 to 50 per month

Rs. 1 8 0 per year for the head of the family.
0 12 0 per year for each dependent.

Rs. 51 to 100 per month

Rs. 1 8 0 per year for each member of the family.

Rs. 101 to 200 per month

Rs. 3 0 0 per year for the head of the family.
2 0 0 ,, ,, for each dependant.

A family is to be taken as consisting of five members on the average.

3. A doctor is to be paid Rs. 125 per month and allotted 500 families or 2,500 persons to look after in an area subject to the following conditions:

(1) All consultations at his or the municipal dispensary are free.

(2) All visits, when necessary, to the families with an income of Rs. 50 or less per month are free.

Members with an income of Rs. 50—100 per month shall pay a fee of 8 annas for each visit.

All those with an income of Rs. 101 - 200 per month shall pay a fee *of Re. 1/- for each visit.*

The visits shall be paid at the descretion of the doctor.

(3) Conveyance charges, if the patient's house is more than one furlong away *from the residence or dispensary wherever the* doctor is present at the time shall be borne by all.

(4) All visit fees shall be paid to the doctor at the time of visit.

4. Medicine shall be dispensed by the municipal dispensary on the prescription of the panel doctor, free of charge. (The patients are at liberty to buy the medicines *from* the local chemists or the doctor's dispensaries, if they so wish.)

5. The panel doctors shall look after their cases admitted into the municipal hospital and all urgencies.

6. The doctor of the area shall co-operate with the health officer for all public health work.

This is the scheme in general.

Rules in detail for the proper working of the scheme, when once it is accepted, can be drawn in consultation with the authorities.

The scheme as applied to Vizagapatam for your information.

Now taking the town of Vizagapatam in particular, the figures work *out as follows:*

Out of a population of 60,000, taking an average family to consist of 5, there are 12,000 families. Out of these 2,000 families can be taken as receiving an income of over Rs. 100 per month leaving 10,000 families which can be taken into the scheme. Out of these 4,000 can be estimated to be of an income of less than Rs. 25 per month, 4,000 of Rs. 26-50 p.m. and 2,000 of Rs. 51-100 p.m.

Then the *income* will be

4,000 families @	Rs. 1—8—0	„	...	6,000—0—0
4,000 „	4—8—0	„	...	18,000—0—0
2,000 „	7—8—0	„	...	15,000—0—0
				Rs. 39,000—0—0

Actually the income will be more as many with an income of above Rs. 100 p.m. will join the scheme.

Expenses.

Allotting 500 families to a doctor 20 doctors will be required for the 10,000 families.

So the fees for the 20 doctors @ Rs. 125/- p.m. each will be ... ... Rs. 30,000

per annum leaving a balance of Rs. 9,000 towards the costs of the establishments and medicines.

The Establishment.

Office.

2 clerks @ 25/- each	...	...	50—0—0
10 bill collectors @ 12/-	...	...	120—0—0
Stationery etc.	...	...	10—0—0
		per month	180—0—0
		per year	2,160—0—0

Dispensary.

1 compounder	...	...	25—0—0
1 midwife	...	...	15—0—0
1 Ward boy	...	...	10—0—0
			50—0—0
for 5 dispensaries	...	...	250—0—0 p.m.
per year	...	...	Rs. 3,000—0—0

Hospital with about 50 beds.

1 compounder	...	...	25—0—0
1 midwife	...	...	15—0—0
2 ward boys @ Rs. 10/- each		...	20—0—0
1 ward woman	...	...	8—0—0
1 thoti	...	...	8—0—0
Miscellaneous	...	...	4—0—0
			80—0—0
		per year	Rs. 960—0—0

Establishment

Office	... ...	Rs. 2,160—0—0
5 Dispensaries & 1 Hospital	... ...	3,950—0—0
Medicines and sundries for dispensaries & Hospital	... ...	2,880—0—0
		9,000—0—0

Thus the income and the recurring expenditure balances.

Thus the municipality saves about Rs. 15,000/- which it is at present spending on medical relief. This amount of one or two years can be contributed towards the capital expenditure of buildings and equipment for two more dispensaries and one hospital as there are already three dispensaries run by the municipality. Or the beginning can be made with the three existing dispensaries till the scheme is going on well. The hospital may be of the ordinary equipment as cases requiring special treatment and appliances can be sent to the King George Hospital. The present three municipal doctors can be taken on the panel.

THE

Research Laboratory,

Harris Road,

MADRAS.

Microscopical, cultural and bacteriological examinations of Blood, Sputum, Urine, Faeces, etc , done.

Widal, Wassermann and Kahn test and Complement Fixation test for Tuberculosis, etc., done.

Stock and Autogenous Vaccines prepared.

Sterile Solutions for injection always in stock.

Please apply for further particulars to :

MANAGER.

THERAPEUTIC NOTES

MODERN TREATMENT OF GONORRHOEA AND ITS COMPLICATIONS IN THE MALE.

"I have found the following course of treatment most satisfactory. It is the safest and shortest anti-gonorrhoeal treatment yet discovered. As the patient comes in, start him at once with one course of Uleron (Bayer), 24 pills. Then rest for seven days, and then give him a second course of uleron. By this time the pus has in most cases disappeared. All along during the uleron course irrigate the patient with 1/10,000 acriflavine solution, and instil with 1/2,000 colloidal silver solution daily; and after the second course of uleron follow up the treatment with 'Gono-yatren ('Behring'), one dose to be injected every fourth day, beginning with 50 million gonococcus, reaching up to 600 million gonococcus by the eighth dose. From the end of the first month start on the prostatic, vesicular and anterior urethral massage and continue it for one month. By this method, if strictly followed, gonorrhoea can easily be cured in two months. We have never had a single complication or toxicity in a series of fifty cases. We had 95 percent of success, of which 5 percent had recurrence."

N. R. Gupta.

A PREMATURE INFANT WEIGHING LESS THAN ONE POUND AT BIRTH WHO SURVIVED AND DEVELOPED NORMALLY!

The Canadian Medical Association of January 1939 reports the case of an infant who at birth weighed only 14 ozs. and who lived and thrived and is now a normal baby of nearly normal weight for its age.

The baby was born on June 6, 1937 to a mother who was 28 years of age at the time—her third child.

The child was so extremely small that it was not expected to survive But the nurse bathed it in Olive Oil, wrapped it in cotton and placed it in a basket in a warm oven. It was given 2 drops of brandy in warm water soon after its birth. The next day it was weighed and found to be only 14 ounces. For 2 days it was given 2 drops of brandy in water and a few drops of Corn Syrup in warm water. On the 3rd day and after, it was given *Lactogen.* The weight at 2 months was 3 pounds; at 4 months 6 pounds and at 7 months 9¾ pounds. At the time of report it was 12 months old and weighed 13 pounds 12 ounces.

JOURNAL OF SOUTH INDIAN MEDICINE.

AUGUST 1939.

THE INDIAN MEDICAL SERVICE.

The whole country has often and again protested against the perpetuation of a military medical service to serve the civil medical needs of this country. The Lee Commission recommendations made the situation more bitter when acute differentiation in the pay and posting was made between the European and Indian members of the Service. At the same time thanks to the wisdom of the provincial governments, a large number of the provincial medical officers were given facilities to gain higher qualifications and richer experience. With these developments the position of the I. M.-S. in the country, and particularly in this province has become extremely untenable.

The need for the Indian Medical Service officers, European or Indian, is questioned on all sides. But no reasonable person forgets the very valuable services rendered by this Service to this country. This country is ever grateful to the distinguished members of this Service who in the past and now contributed by original work under difficult conditions and who have by brilliant organization reduced the appalling morbidity of the half famished population of this wide land.

Strenuous research, energetic measures to fight epidemics, high ethical standard of medical practice, organization of medical education, we acknowledge with gratitude that we owe all these besides others to the former and present members of the Indian Medical Service. In this province the students of Col. Donovan

still have loving memories of his willing work of inspiring the medical student with desire for research and of the scientific bias he gave to the teaching of medicine. The high ethical standards that he and Col. Maitland set before the medical student cannot easily be forgotten. Nor can we forget the high acumen with which Col. Russel organized the Public Health Department of Madras. Outside this province, the names of Ross, Rogers, Glen Liston to name only a few will ever stand as monuments to the unselfish work of these officers.

When therefore Indians press for the abolition of this Service it is not because they are ungrateful, nor is it because they have any prejudice against the present incumbents. We do not believe that there has been any deterioration of the standards of this Service. On the whole they maintain the same standards. There have always been a large number of indifferent officers, but there were and still there are a few men of outstanding merit.

The real reason is that the Medical Colleges and the large Presidency hospitals have trained a large number of equally capable Indian Medical men who could hold their own with the medical men of any other country as teachers, research workers and practitioners. No body of men has testified to this fact more readily or generously than the members of the I. M. S. itself. We therefore think that the time is come for the British Government to reconsider their attitude towards this question.

THE SOUTH INDIAN MEDICAL UNION, MADRAS.

Annual Report of the working of the Union with Financial Statement for the year ending March 1939.

OFFICE-BEARERS.

President.

M. Subramania Iyer.

Vice-Presidents.

B. M. Sundaravadanam.
P. S. Varadarajan.

Members of the Council.

P. Govinda Rao.
M. Krishnamurthi.
C. R. Krishnaswami.
A. J. S. Masilamani.
V. D. Nimbkar.
P. Natesan.
P. Rama Rao.
S. Rajagopalan.
E. V. Srinivasan.
S. Thambiah.

Secretaries.

T. Satakopan (General).
V. C. Sudarsanam (Scientific).

Editorial Board.

G. Zachariah (Publicity Officer).

K. Bhujanga Rao.
U. D. Gopala Rao.
K. R. C. Hebbar.
M. Krishnamurthi (Secretary).
C. R. Krishnaswami.
K. C. Paul.
P. Rama Rao.
B. M. Sundaravadanam.
E. V. Srinivasan.
P. S. Varadarajan.

Finance.

The Financial Statement up to the end of March 1939 as certified by the auditor is herewith appended.

Meetings of the Council.

The Council of the Union met on five occasions during the year for transacting the routine business of the Union.

Clinical Meetings.

The following papers were read before the Union :—

1. 22nd June 1939.—" National Health Insurance (Panel Practice in Great Britain") By Dr. K. C. Nambiar, F.R.C.S.
2. 12th September 1938.—" Some observations on Ulceration of the Stomach and Duodenum " By Dr. P. Govinda Rao, M.B. & B.S.
3. 19th January 1939.—" Some Medical Aspects of Chemical Welfare" By Dr. V. C. Sudarsanam, M.B. & B.S.

Social.

The Union held a reception on the 20th July 1938 to felicitate Dr. M. Subramania Iyer on the honour of Rao Bahadur conferred on him by the Government. The function was a great success.

The Journal of South Indian Medicine.

The Council of the Union regrets to report that the Journal has not been conducted very successfully during the year under review. It is hoped that the members of the Union would devise ways and means to improve the publicity section in the ensuing year.

Acknowledgments.

Dr. E. V Srinivasan has once more placed the Union under a great debt of obligation to him by permitting the use of his premises at 32, Broadway, for the activities of the Union.

The Union is indebted to Messrs. Brahmayya & Co., Accountants and Auditors, for kindly auditing the accounts of the Union for the period ending March 1939 free of all charges.

The South Indian Medical Union, Madras

Receipts and Payments Account for the year ending 31st March 1939.

RECEIPTS.	Rs.	A.	P.	PAYMENTS.	Rs.	A.	P.
To Cash as on 1—4—1938 ...	25	4	0	By Publicity Section ...	1,344	7	9
„ „ Indian Bank C/A ...	143	11	3	„ Establishment ...	375	0	0
„ „ „ „ S/B A/c ...	681	11	5	„ Stationery and Sundries ...	65	7	0
„ Publicity Section ...	537	0	0	„ Postage ...	9	10	6
„ Subscriptions ...	645	0	0	„ Cash on hand ...	7	2	6
„ Bank interest ...	17	10	4	„ „ Indian Bank C/A ...	88	5	6
				„ „ Savings Bank A/c ...	160	3	9
Total ...	2,050	5	0	Total ...	2,050	5	0

Examined and found correct.

M. SUBRAMANIA IYER,
President.

BRAHMAYYA & CO.,
Incorporated Accountants and
Registered Accountants, Hony. Auditors.
7, Kondi Chetty Street, Madras.

T. SATAKOPAN,
V. C. SUDARSANAM,
Secretaries.

The Annual Meeting of the South Indian Medical Union was held at 6 p.m. on Monday the 17th July 1939 at Union Premises, No. 6, Rundall's Road, Vepery, Madras.

The following members were present :—

Dr. T. Satakopan.
" G. Zachariah.
" N. Gangadharan.
" S. Thambiah.
" P. T. Raghavachari.
" T. Venkateswara Rao.
" G. S. Katre.
" A. M. Sivaraman.
" B. Seshagiri Rao.
" B. M. Sundaravadanan.
" T. N. Lakshmipathy.
" K. Venkata Rao.
" L. V. Srinivasan.
" P. Srinivasan.
" V. Govindarajulu.
" V. D. Nimbkar.
" M. Krishnamoorthi.
" J. A. S. Masilamani.

After Tea the meeting was commenced with Dr. V. D. Nimbkhar in the Chair.

1. After a few introductory remarks by the Chairman the Secretary presented the Annual Report for the year ending 1938-39.

2. Dr. M. Krishnamoorthi proposed and Dr. J. A. S. Masilamani seconded that the Report be adopted. The resolution was carried unanimously.

3. Dr. T. Satakopan proposed and Dr. V. Govindarajulu seconded that Dr. M. Subramania Iyer be the President of the Union. The resolution was carried unanimously.

4. Dr. L. V. Srinivasan proposed and Dr. N. Gangadharan seconded that Dr. B. M. Sundaravadanan and Dr. P. S. Varadarajan be the Vice-Presidents of the Union. The resolution was carried unanimously.

5. Dr. P. T. Raghava Chari proposed and Dr. N. Gangadharan seconded that Dr. T. Satakopan be elected as General Secretary; and Dr. T. Satakopan proposed and Dr. B. Seshagiri Rao seconded that Dr. N. Gangadharan be the Joint Secretary. The resolutions were carried unanimously.

6. The following gentlemen were unanimously elected as members of the Council:

Dr. L. V. Srinivasan.
„ B. Seshagiri Rao.
„ P. T. Raghavachari.
„ V. D. Nimbkhar.
„ G. Zachariah.
„ M. Krishnamoorthi.
„ J. A. S. Masilamani.
„ S. Thambiah.
„ P. Natesan.
„ P. Govinda Rao.
„ E. V. Srinivasan.
„ C. R. Krishnaswami.

7. Dr. T. Satakopan proposed and Dr. B. Seshagiri Rao seconded that Dr. G. Zachariah be the Publicity Officer. The resolution was carried unanimously.

With a vote of thanks to the retiring office-bearers and to the Chairman the meeting terminated.

ASSOCIATION NOTES.

The South Indian Medical Union, Madras.

The first meeting for the year of the governing Council of the Union was held at No. 14, Ritherdon Road, Vepery, Madras at 6-15 p.m. on Thursday the 27th July 1939.

The following members were present:

1. Dr. S. Thambiah.
2. „ N. Gangadharan.
3. „ G. Zachariah.
4. „ V. D. Nimbkhar.
5. „ T. Satakopan.
6. „ M. Krishnamurthi.
7. „ B. Seshagiri Rao.
8. „ P. T. Raghavachari.
9. „ L. V. Srinivasan.
10. „ A. J. S. Masilamani.

Dr. S. Thambiah was in the chair.

1. The minutes of the last meeting were read and approved.

2. There was a general discussion about the organization of work for the year. It was agreed that the members of the Union should individually or in groups arrange to present papers before the Union meetings for the year. Many of those present agreed to be responsible for at least one meeting in the year. The following provisional arrangements were made for the monthly meetings:

1.	Dr.	M. Krishnamurthi, Anaesthesia		Aug.	1939.
2.	„	S. Rajagopalan, Subject to be announced later		Sep.	„
3.	„	N. Gangadharan,	„	Oct.	„
4.	„	S. Thambiah,	„	Nov.	„
5.	„	J. A. S. Masilamani,	„	Dec.	„
6.	„	G. Zachariah,	„	Jan.	1940.
7.	„	L. V. Srinivasan,	„	Feb.	„
8.	„	B. Seshagiri Rao,	„	Mar.	„
9.	„	K. C. Paul.			
10.	„	B. M. Sundaravadanan.			
11.	„	C. R. Krishnaswami.			
12.	„	S. K. Menon.			
13.	„	Lasrado.			

With a vote of thanks to the chair, the meeting was dissolved.